

Algebra/Topology Seminar

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EXAMPLES OF HIGHER CATEGORIES IN THE FORM OF COMPLICIAL SETS

Thursday, October 30, 2025
3:00 p.m. in Massry B010

ABSTRACT. We explore the implementation of higher categories of interest using Verity's complicial sets. In this model, higher categories are encoded as simplicial sets where k -simplices represent k -morphisms and marked k -simplices indicate equivalences. To illustrate the formalism, we review a construction of the $(\infty, 2)$ -category of rings and bimodules as a 2-complicial set, and discuss ongoing work toward defining an (∞, ∞) -category of manifolds and cobordisms within this framework. Some of the constructions I will present are joint and ongoing work with Dutta–Luneia–Silver–Zapata Castro in various combinations.